## SEQUENCE LISTING

<110> Kimble, Judith E Blelloch, Robert H

<120> Agent and Method for Modulating Cell Migration

<130> 960296.95386

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<150> 60/087170

<151> 1998-05-29

10 <150> 60/129023

<151> 1999-04-13

<160> 2

<170> PatentIn Ver.

<210> 1

15 <211> 6659

<212> DNA

<213> Caenorhabditis elegans

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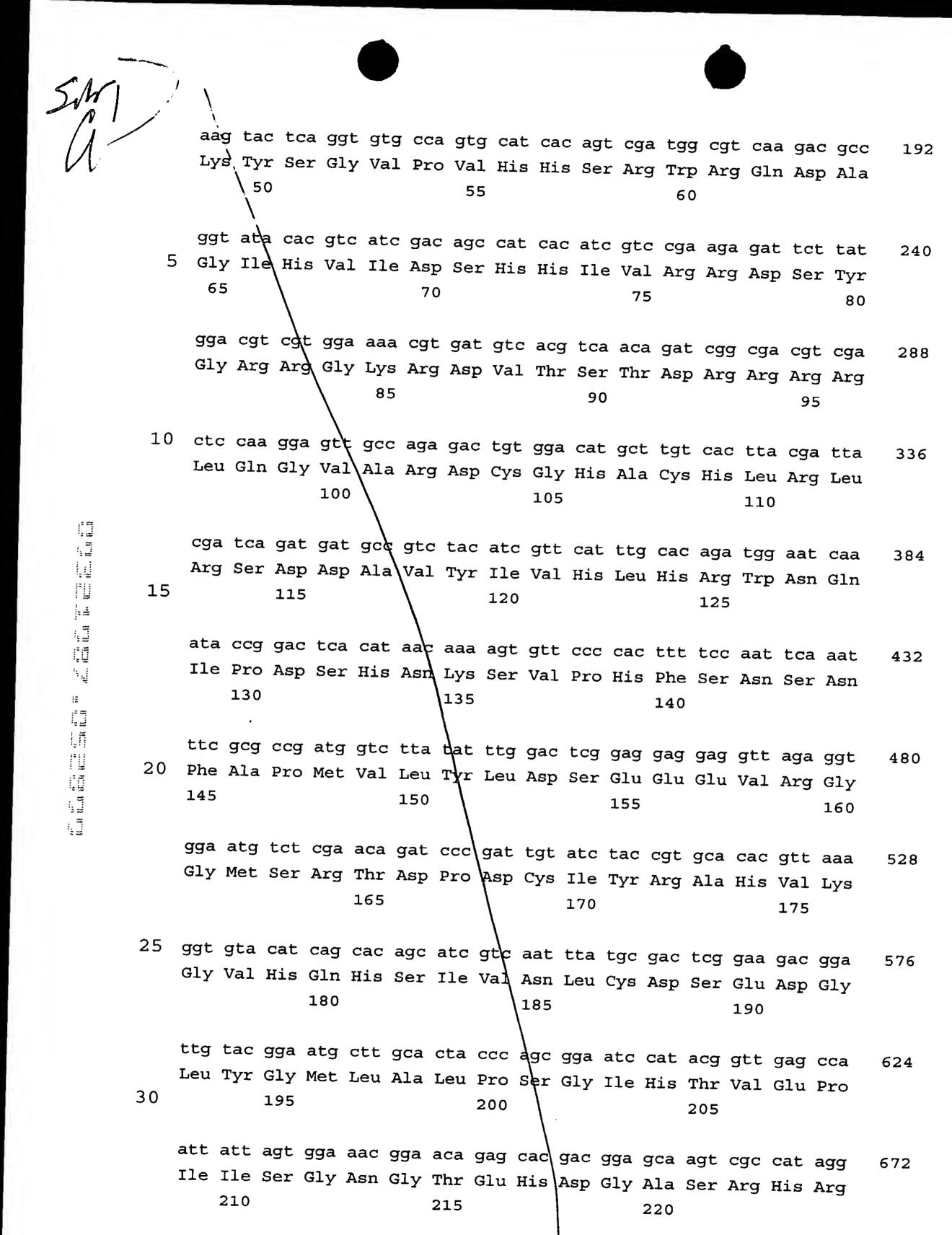
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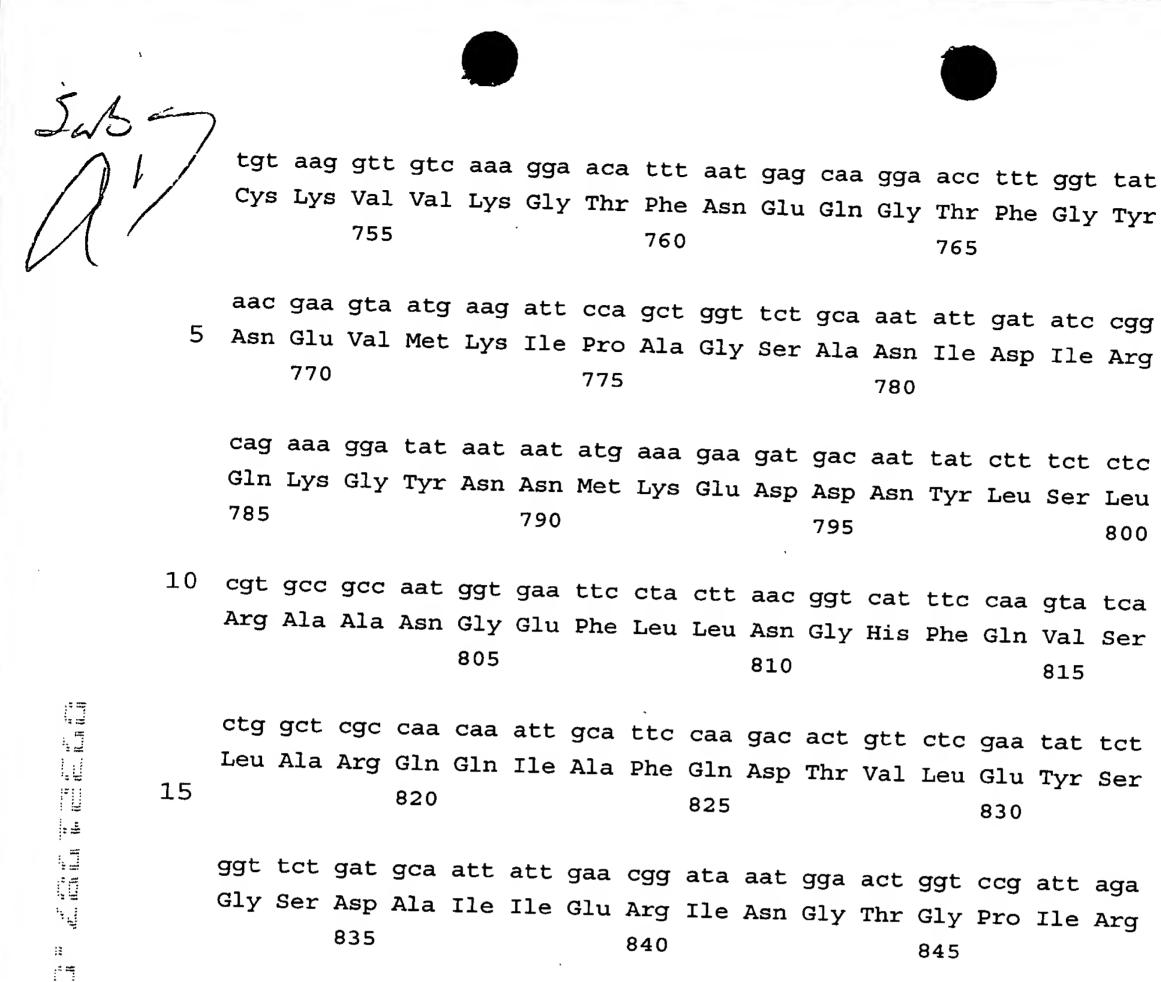


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	Arg	Trp	Lys				Trp	Ser				Val	Thr	Cys	Gly	y Arg	ī
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	aaa	ata	2~2														
	Glv	. all	aga	Amer	egt	gaa	gtt	caa	tgt	tat	cgt	ggt	cgc	aag	aat	ttg	5136
15	GLY	116	Arg		Arg	GIU	vaı	\		Tyr	Arg	Gly	Arg	Lys	Asr	1 Leu	
			•	1700				į	L705				:	1710			
	ata	tct	aat	tca	a a a	taa	225	~~~									
	Val	Ser	gat	Ser	Glu	Cyc	Aar.	Dwa	aaa	act	aag -	ctc	aac	tct	gtt	gcc	5184
	7		Asp 1715	DCI	Giu	Cys		.720	гуз	Thr	ьуs			Ser	Val	Ala	
			_,				_	. 720	\				1725				
	aac	tqt	ttc	cca	ata	act	tat	cca	act	<u></u>	200	+~~					
20	Asn	Cys	Phe	Pro	Val	Ala	Cvs	Pro	Mla	Tir	۸xa	Ton	aat	gtt	act	cca	5232
	:	1730					735	110	AIG	1 1		740	ASI	vaı	Thr	Pro	
						_	, 55				_	. /40					
	tgg	agc	aag	tgc	aaa	gat	qaq	tat	act.	cga	\aaa	caa	224	<b>a</b> aa	205	~~+	<b>5</b> 200
	Trp	Ser	Lys	Cys	Lys	Asp	Glu	Cvs	Ala	Ara	Glv	Gln	Lve	Caa Cln	Thr	Ara	5280
	1745	5		_		.750		2			755	0.111	цуз	GIII		1760	
															•	1760	
25	cgg	gtg	cac	tgt .	ata	agc a	act	tct	ggt	aaa	cga	qca	act	cca	cga	ato	5328
	Arg	Val	His	Cys	Ile	Ser '	Thr :	Ser (	Gly :	Lys .	Arg	Ala	Ala	Pro	Ara	Met	5526
					765					770	3				.775	Mec	
														_	.,,,		
	tgt	gaa	ttg (	gct (	cgt	gca d	cca a	act 1	tcg a	atc a	aga 🤄	gag	tac (	gat	aca	tca	5376
	Cys	Glu	Leu i	Ala A	Arg .	Ala I	Pro I	Thr s	Ser :	Ile 2	Arg	Glu	Cys I	Asp	Thr	Ser	3370
30				780					785		_	\		790			
												/	\				
	aat	tgt	cca t	at g	gag	tgg g	jtg d	ca ç	ga g	gat t	tgg (	caa a	acg t	gt	tca	aaq	5424
	Asn	Cys	Pro 1	yr (	∃lu '	Trp V	al E	Pro G	ly A	asp 1	Trp (	3ln :	rhr o	Cys	Ser	Lys	
		1	795					800					305			-	

	tca tgt gga gaa gga gta cag aca cga gaa gtc aga tgt cgt aga aag	5472
	Ser Cys Gly Glu Gly Val Gln Thr Arg Glu Val Arg Cys Arg Arg Lys	
	1810 \ 1815 1820	
_	att aat ttt aac tca acc att cca att ata ttt atg ctc gaa gat gaa	5520
Ę	Ile Asn Phe Asn Ser Thr Ile Pro Ile Ile Phe Met Leu Glu Asp Glu	3320
	1825 \ 1830 \ 1840	
	cca gct gta cca ala gag aaa tgt gaa ctt ttc cca aaa cca aat gaa	5568
	Pro Ala Val Pro Lys Glu Lys Cys Glu Leu Phe Pro Lys Pro Asn Glu	
	1845 1850 1855	
1.0		
10	and the same of the same of the gat the gas the same too age	5616
	Ser Gin Thr Cys Glu Leu Asn Pro Cys Asp Ser Glu Phe Lys Trp Ser	·
	1860 \ 1865 1870	
	ttc gga cca tgg ggt gaa tgc tcg aaa aat tgc ggt caa ggt att cga	5664
<b>1</b> -	Phe Gly Pro Trp Gly Glu Cys Ser Lys Asn Cys Gly Gln Gly Ile Arg	
15	1875 \1880 1885	
	cgt cga cgt gtc aag tgt gtg gcc aat gat ggt cgt cga gtt gaa cga	5712
	Arg Arg Arg Val Lys Cys Val Ala Asn Asp Gly Arg Arg Val Glu Arg	
	1890 1895 \ 1900	
20	gtc aag tgt acc aca aag aaa cca cgt cga act caa tat tgt ttt gaa	5760
20	val Lys Cys Thr Thr Lys Lys Pro Arg Arg Thr Gln Tyr Cys Phe Glu	
	1905 1910 \ 1915 1920	
	aga aat tgc ctt ccg tca act tgt cag gag ctt aaa tct cag aat gtt	5808
	Arg Asn Cys Leu Pro Ser Thr Cys Gln\Glu Leu Lys Ser Gln Asn Val	
	1925 1930 1935	
2.5		
25	aag gct aaa gat gga aat tac act att cot ctt gac gga ttc act att	5856
	Lys Ala Lys Asp Gly Asn Tyr Thr Ile Leu Asp Gly Phe Thr Ile	
	1940 1945 \ 1950	
	gaa att tat tgt cat cga atg aat tca acc att cct aaa gct tat ttg	5904
30	Giu lie Tyr Cys His Arg Met Asn Ser Thr he Pro Lys Ala Tyr Leu	
J ()	1955 1960 1965	
	aac gtt aat cca aga acc aat ttt gca gag gtt tat gga aaa aaa tta	5952
	Asn Val Asn Pro Arg Thr Asn Phe Ala Glu Val Tyr Gly Lys Lys Leu	
	1970 1975 1980	

	ata tac cct cat act tgc cca ttt aat ggt gat cgt aat gat tca tgc	6000
	Ile Tyr Pro His Thr Cys Pro Phe Asn Gly Asp Arg Asn Asp Ser Cys	6000
	1985 \ 1990	
	1995 2000	
	cat tgt tca gaa gac ggc gat gca agt gct gga ttg acg aga ttc aat	
	5 His Cys Ser Glu Asp Gly Asp Ala Ser Ala Gly Leu Thr Arg Phe Asn	6048
	\ 2005	
	2010 2015	
	aaa gtt cga aka gat ttg ttg aat aga	
	aaa gtt cga ata gat ttg ttg aat aga aag ttc cat ctg gcg gat tat	6096
	Lys Val Arg Ile Asp Leu Leu Asn Arg Lys Phe His Leu Ala Asp Tyr	
	2020 2025 2030	
10	O aca ttt cca aca -	
_ `	and god add cya gad lat ggt gtt cat gtg cca tat ggt act gcg	6144
	Thr Phe Ala Lys Arg Glu Tyr Gly Val His Val Pro Tyr Gly Thr Ala	
	2035 2040 2045	
	ggt gat tgc tac agt atg aaa gat tgt cca cag gga ata ttc tca att	6192
1 -	Lys Asp Cys Tyr Ser Met Lys Asp Cys Pro Gln Gly Ile Phe Ser Ile	
15	2050 2055 2060	
	gat tta aaa tct gct ggt ctg aaa tta gtt gac gat ctg aat tgg gag	6240
	Asp Leu Lys Ser Ala Gly Leu Lys Leu Val Asp Asp Leu Asn Trp Glu	0240
	2065 2070 2075 2080	
	gat caa ggt cat cga aca tcc tct cga atc gat cgt ttt tat aac aat	6200
20	Asp Gln Gly His Arg Thr Ser Ser Arg Ile Asp Arg Phe Tyr Asn Asn	6288
	2085	
	2090 2095	
	gca aaa gtt att ggt cac tgt ggt ggt ttt tgt gga aaa tgc tct cct	
	Ala Lys Val Ile Gly His Cys Gly Gly Phe Cys Gly Lys Cys Ser Pro	6336
	2100	
	2105	
25	gag cgg tac aaa gga cta atc ttt gaa gt	
	gag cgg tac aaa gga cta atc ttt gaa gtt aat aca aaa tta tta aat	6384
	Glu Arg Tyr Lys Gly Leu Ile Phe Glu Val Asn Thr Lys Leu Leu Asn	
	2115 2120 \ 2125	
	Cat gtg aaa aat ggt gga ga aat a	
	cat gtg aaa aat ggt gga cac att gat gat gat gtg gat gat ggt	6432
30	His Val Lys Asn Gly Gly His Ile Asp Asp Glu Leu Asp Asp Gly	
	2130 2135 2140	
	tta tat ant man	
	ttc tct ggt gac atg gat taa ttttttcgat acctaaaagt gtcaaaatct	6483
	Phe Ser Gly Asp Met Asp	
	2145	

agtttttaat agcattactt cgaatttatt gtcattccct caatcaccta acactaggtt 6603
ttctacatag tatgttcctt gaaaatgttt catgatcaaa ggttacggta cttttg 6659

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5 <211> 2150

<212> PRT

<213> Caenorhabditis elegans

<400> 2

Met Arg Ser Ile Gly Gly Ser Phe His Leu Leu Gln Pro Val Val Ala

10 1 5 10 15

Ala Leu Ile Leu Val Val Cys Leu Val Tyr Ala Leu Gln Ser Gly
20 25 30

Ser Gly Thr Ile Ser Glu Phe Ser Ser Asp Val Leu Phe Ser Arg Ala

15 Lys Tyr Ser Gly Val Pro Val His His Ser Arg Trp Arg Gln Asp Ala

Gly Ile His Val Ile Asp Ser His His Ile Val Arg Arg Asp Ser Tyr
65 70 75 80

Gly Arg Arg Gly Lys Arg Asp Val Thr Ser Thr Asp Arg Arg Arg Arg 20 85 95

Leu Gln Gly Val Ala Arg Asp Cys Gly His Ala Cys His Leu Arg Leu
100 105 110

Arg Ser Asp Asp Ala Val Tyr Ile Val His Deu His Arg Trp Asn Gln
115 120 125

25 Ile Pro Asp Ser His Asn Lys Ser Val Pro His Phe Ser Asn Ser Asn 130 135

Phe Ala Pro Met Val Leu Tyr Leu Asp Ser Glu Glu Glu Val Arg Gly
145 150 155

Gly Met Ser Arg Thr Asp Pro Asp Cys Ile Tyr Arg Ala His Val Lys
30 165 170 175

Gly Val His Gln His Ser Ile Val Asn Leu Cys Asp Ser Glu Asp Gly
180 185 190

Leu Tyr Gly Met Leu Ala Leu Pro Ser Gly Ile His Thr Val Glu Pro

5 Ile Ile Ser Gly Asn Gly Thr Glu His Asp Gly Ala Ser Arg His Arg
210 220

Gln His Leu Val Arg Lys Phe Asp Pro Met His Phe Lys Ser Phe Asp 235 240

His Leu Asn Ser Thr Ser Val Asn Glu Thr Glu Thr Thr Val Ala Thr

245
250
255

Trp Gln Asp Gln Trp Glu Asp Val Ile Glu Arg Lys Ala Arg Ser Arg 260 265 270

Arg Ala Ala Asn Ser Trp Asp His Tyr Val Glu Val Leu Val Val Ala 275 280 285

15 Asp Thr Lys Met Tyr Glu Tyr His Gly Arg Ser Leu Glu Asp Tyr Val
290 295 300

Leu Thr Leu Phe Ser Thr Val Ala Ser Ile Tyr Arg His Gln Ser Leu 305 310 315

Arg Ala Ser Ile Asn Val Val Val Lys Leu Ile Val Leu Lys Thr
325
330
335

Glu Asn Ala Gly Pro Arg Ile Thr Gln Asn Ala Gln Gln Thr Leu Gln 340 350

Asp Phe Cys Arg Trp Gln Gln Tyr Tyr Asn Asp Pro Asp Asp Ser Ser 355

25 Val Gln His His Asp Val Ala Ile Leu Leu Thr Arg Lys Asp Ile Cys 370 375

Arg Ser Gln Gly Lys Cys Asp Thr Leu Gly Leu Ala Glu Leu Gly Thr
385
390
395
400

Met Cys Asp Met Gln Lys Ser Cys Ala Ile Ile Glu Asp Asn Gly Leu
405
410
415

Ser Ala Ala Phe Thr Ile Ala His Glu Leu Gly His Val Phe Ser Ile Pro His Asp Asp Glu Arg Lys Cys Ser Thr Tyr Met Pro Val Asn Lys Asn Asn Phe Hia Ile Met Ala Pro Thr Leu Glu Tyr Asn Thr His Pro Trp Ser Trp Ser Pto Cys Ser Ala Gly Met Leu Glu Arg Phe Leu Glu Asn Asn Arg Gly Gln Thr Gln Cys Leu Phe Asp Gln Pro Val Glu Arg Arg Tyr Tyr Glu Asp Val\Phe Val Arg Asp Glu Pro Gly Lys Lys Tyr Asp Ala His Gln Gln Cys Lys Phe Val Phe Gly Pro Ala Ser Glu Leu 15 Cys Pro Tyr Met Pro Thr Cys Arg Leu Trp Cys Ala Thr Phe Tyr Gly Ser Gln Met Gly Cys Arg Thr Gln His Met Pro Trp Ala Asp Gly Thr Pro Cys Asp Glu Ser Arg Ser Met Phe Cys His His Gly Ala Cys Val Arg Leu Ala, Pro Glu Ser Leu Thr L\s Ile Asp Gly Gln Trp Gly Asp Trp Arg Ser Trp Gly Glu Cys Ser Arg Thr Cys Gly Gly Val 25 Gln Lys Gly Leu Arg Asp Cys Asp Ser Pro Lys, Pro Arg Asn Gly Gly Lys Tyr Cys Val Gly Gln Arg Glu Arg Tyr Arg Ser Cys Asn Thr Gln Glu Cys Pro Trp Asp Thr Gln Pro Tyr Arg Glu Val Gln Cys Ser Glu 

Phe Asn Asn Lys Asp Ile Gly Ile Gln Gly Val Ala Ser Thr Asn Thr 660 670

His Trp Val Pro Lys Tyr Ala Asn Val Ala Pro Asn Glu Arg Cys Lys 675 680 685

5 Leu Tyr Cys Arg Leu Ser Gly Ser Ala Ala Phe Tyr Leu Leu Arg Asp
690 700

Lys Val Val Asp Gly Thr Pro Cys Asp Arg Asn Gly Asp Asp Ile Cys
705 710 715 720

Val Ala Gly Ala Cys Met Pro Ala Gly Cys Asp His Gln Leu His Ser
730 735

Thr Leu Arg Arg Asp Lys Cys Gly Val Cys Gly Gly Asp Asp Ser Ser 740 745 750

Cys Lys Val Val Lys Gly Thr Phe Asn Glu Gln Gly Thr Phe Gly Tyr
755 760 765

15 Asn Glu Val Met Lys Ile Pro Ala Gly Ser Ala Asn Ile Asp Ile Arg
770 775 780

Gln Lys Gly Tyr Asn Asn Met Lys Glu Asp Asp Asn Tyr Leu Ser Leu
785 790 795 800

Arg Ala Ala Asn Gly Glu Phe Leu Lev Asn Gly His Phe Gln Val Ser 805

Leu Ala Arg Gln Gln Ile Ala Phe Gln Asp Thr Val Leu Glu Tyr Ser

Gly Ser Asp Ala Ile Ile Glu Arg Ile Asn Gly Thr Gly Pro Ile Arg 835 840 845

25 Ser Asp Ile Tyr Val His Val Leu Ser Val Gly Ser His Pro Pro Asp 850 855

Ile Ser Tyr Glu Tyr Met Thr Ala Ala Val Pro Asn Ala Val Ile Arg 865 870 880

Pro Ile Ser Ser Ala Leu Tyr Leu Trp Arg Val Thr Asp Thr Trp Thr 895

Glu Cys\Asp Arg Ala Cys Arg Gly Gln Gln Ser Gln Lys Leu Met Cys 910. Leu Asp Met Ser Thr His Arg Gln Ser His Asp Arg Asn Cys Gln Asn 5 Val Leu Lys kro Lys Gln Ala Thr Arg Met Cys Asn Ile Asp Cys Ser Thr Arg Trp Ile Thr Glu Asp Val Ser Ser Cys Ser Ala Lys Cys Gly Ser Gly Gln Lys Arg Gln Arg Val Ser Cys Val Lys Met Glu Gly Asp Arg Gln Thr Pro Ala Ser Glu His Leu Cys Asp Arg Asn Ser Lys Pro Ser Asp Ile Ala Ser Cys Tyr Ile Asp Cys Ser Gly Arg Lys Trp Asn Tyr Gly Glu Trp Thr Ser Cys\Ser Glu Thr Cys Gly Ser Asn Gly Lys Met His Arg Lys Ser Tyr Cys Val Asp Asp Ser Asn Arg Arg Val Asp Glu Ser Leu Cys Gly Arg Glu Gln Lys Glu Ala Thr Glu Arg Glu Cys Asn Arg Ile Pro Cys Pro Arg Trp Val Tyr Gly His Trp Ser Glu Cys Ser Arg Ser Cys Asp Gly Gly Val Lys Met\Arg His Ala Gln Cys Leu 25 Asp Ala Ala Asp Arg Glu Thr His Thr Ser Arg Cys Gly Pro Ala Gln Thr Gln Glu His Cys Asn Glu His Ala Cys Thr Trp Trp Gln Phe Gly Val Trp Ser Asp Cys Ser Ala Lys Cys Gly Asp Gly Val Gln Tyr Arg 

Asp Ala Asn Cys Thr Asp Arg His Arg Ser Val Leu Pro Glu His Arg Cys Leu Lys Met Glu Lys Ile Ile Thr Lys Pro Cys His Arg Glu Ser Cys Pro Lys Tyr Lys Leu Gly Glu Trp Ser Gln Cys Ser Val Ser Cys Glu Asp Gly Trp Ser Ser Arg Arg Val Ser Cys Val Ser Gly Asn Gly Thr Glu Val Asp Met\Ser Leu Cys Gly Thr Ala Ser Asp Arg Pro Ala Ser His Gln Thr Cys Ash Leu Gly Thr Cys Pro Phe Trp Arg Asn Thr Asp Trp Ser Ala Cys Ser Val Ser Cys Gly Ile Gly His Arg Glu Arg 15 Thr Thr Glu Cys Ile Tyr Arg\Glu Gln Ser Val Asp Ala Ser Phe Cys Gly Asp Thr Lys Met Pro Glu Thr Ser Gln Thr Cys His Leu Leu Pro Cys Thr Ser Trp Lys Pro Ser His Typ Ser Pro Cys Ser Val Thr Cys Gly Ser Gly Ile Gln Thr Arg Ser Val\Ser Cys Thr Arg Gly Ser Glu Gly Thr Ile Val Asp Glu Tyr Phe Cys Asp Arg Asn Thr Arg Pro Arg 25 Leu Lys Lys Thr Cys Glu Lys Asp Thr Cys Asp Gly Pro Arg Val Leu Gln Lys Leu Gln Ala Asp Val Pro Pro Ile Ard Trp Ala Thr Gly Pro Trp Thr Ala Cys Ser Ala Thr Cys Gly Asn Gly Thr Gln Arg Arg Leu 

Leu	Dys	Cys	Arg	Asp	His	Val	Arg Asp	Leu	Pro	Asp	Glu	Tyr	Cys	Asn
			1380				1385				1	L390		
	'	\					Mlara Boom							

His Leu Asp Lys Glu Val Ser Thr Arg Asn Cys Arg Leu Arg Asp Cys
1395
1400
1405

5 Ser Tyr Trp Lys Met Ala Glu Trp Glu Glu Cys Pro Ala Thr Cys Gly
1410 1415 1420

Thr His Val Gln Gln Ser Arg Asn Val Thr Cys Val Ser Ala Glu Asp
425
1430
1430
1440

Gly Gly Arg Thr Ile Leu Lys Asp Val Asp Cys Asp Val Gln Lys Arg

Pro Thr Ser Ala Arg Asn Cys Arg Leu Glu Pro Cys Pro Lys Gly Glu
1460 1465 1470

Glu His Ile Gly Ser Trp Ile Ile Gly Asp Trp Ser Lys Cys Ser Ala 1475

15 Ser Cys Gly Gly Trp Arg Arg Ser Val Ser Cys Thr Ser Ser 1490 1500

Ser Cys Asp Glu Thr Arg Lys Pro Lys Met Phe Asp Lys Cys Asn Glu
1510 1515 1520

Glu Leu Cys Pro Pro Leu Thr Asn Asn Ger Trp Gln Ile Ser Pro Trp

1525
1580
1535

Thr His Cys Ser Val Ser Cys Gly Gly Gly Val Gln Arg Arg Lys Ile
1540 1545

Trp Cys Glu Asp Val Leu Ser Gly Arg Lys Gln Asp Asp Ile Glu Cys
1555 1560 1565

25 Ser Glu Ile Lys Pro Arg Glu Gln Arg Asp Cys Glu Met Pro Pro Cys
1570 1575 1580

Arg Ser His Tyr His Asn Lys Thr Ser Ser Ala Ser Met Thr Ser Leu

1590 1595 1600

Ser Ser Ser Asn Ser Asn Thr Thr Ser Ser Ala Ser Ala Ser Ser Leu

1605
1610
1615

Pro Ile Leu Pro Pro Val Val Ser Trp Gln Thr Ser Ala Trp Ser A	la
Cys Ser Ala Lys Cys Gly Arg Gly Thr Lys Arg Arg Val Val Glu Cy 1635 1640 1645	ys
5 Val Asn Pro Sex Leu Asn Val Thr Val Ala Ser Thr Glu Cys Asp Gl 1650 1660	ln
Thr Lys Lys Pro Val Glu Glu Val Arg Cys Arg Thr Lys His Cys Pr 665	
Arg Trp Lys Thr Thr Trp Ser Ser Cys Ser Val Thr Cys Gly Ar 10 1685 1690 1695	ğ
Gly Ile Arg Arg Glu Val Gln Cys Tyr Arg Gly Arg Lys Asn Le	u
Val Ser Asp Ser Glu Cys Asn Pro Lys Thr Lys Leu Asn Ser Val Al. 1715	a
15 Asn Cys Phe Pro Val Ala Cys Pro Ala Tyr Arg Trp Asn Val Thr Pro	၁
Trp Ser Lys Cys Lys Asp Glu Cys Ala Arg Gly Gln Lys Gln Thr Arg	
Arg Val His Cys Ile Ser Thr Ser Gly Lys Arg Ala Ala Pro Arg Met 20 1765 1770 1775	:
Cys Glu Leu Ala Arg Ala Pro Thr Ser Ile Arg Glu Cys Asp Thr Ser	•
Asn Cys Pro Tyr Glu Trp Val Pro Gly Asp Trp Gln Thr Cys Ser Lys 1795 1800 1805	
25 Ser Cys Gly Glu Gly Val Gln Thr Arg Glu Val Arg Cys Arg Arg Lys 1810 1815	
Ile Asn Phe Asn Ser Thr Ile Pro Ile Ile Phe Met Leu Glu Asp Glu 825 1830 1835 1840	
Pro Ala Val Pro Lys Glu Lys Cys Glu Leu Phe Pro Lys Pro Asn Glu  1845  1855	

- Ser Gln Thr Cys Glu Leu Asn Pro Cys Asp Ser Glu Phe Lys Trp Ser 1860 1865 1870
- Phe Gly Pro Trp Gly Glu Cys Ser Lys Asn Cys Gly Gln Gly Ile Arg 1875 1880 1885
- 5 Arg Arg Arg Val Lys Cys Val Ala Asn Asp Gly Arg Arg Val Glu Arg 1890 1895 1900
  - Val Lys Cys Thr Thr Lys Lys Pro Arg Arg Thr Gln Tyr Cys Phe Glu
    905 1910 1915 1920
- Arg Asn Cys Leu Pro Ser Thr Cys Gln Glu Leu Lys Ser Gln Asn Val

  10 1925 1930 1935
  - Lys Ala Lys Asp Gly Asn Tyr Thr Ile Leu Leu Asp Gly Phe Thr Ile 1940 1945 1950
  - Glu Ile Tyr Cys His Arg Met Asn Ser Thr Ile Pro Lys Ala Tyr Leu 1955 1960 1965
- 15 Asn Val Asn Pro Arg Thr Asn Phe Ala Glu Val Tyr Gly Lys Lys Leu 1970 1975 1980
  - Ile Tyr Pro His Thr Cys Pro Phe Asn Gly Asp Arg Asn Asp Ser Cys
    1990 1995 2000
- His Cys Ser Glu Asp Gly Asp Ala Ser Ala Gly Leu Thr Arg Phe Asn
  20 2015
  - Lys Val Arg Ile Asp Leu Leu Asn Arg Lys Phe His Leu Ala Asp Tyr 2020 2025 2030
  - Thr Phe Ala Lys Arg Glu Tyr Gly Val His Val Pro Tyr Gly Thr Ala 2035 2040 2045
- 25 Gly Asp Cys Tyr Ser Met Lys Asp Cys Pro Gln Gly Ile Phe Ser Ile 2050 2055 2060
  - Asp Leu Lys Ser Ala Gly Leu Lys Leu Val Asp Asp Leu Asn Trp Glu 2070 2075 2080
- Asp Gln Gly His Arg Thr Ser Ser Arg Ile Asp Arg Phe Tyr Asn Asn 2090 2095

Ala Lys Val Ile Gly His Cys Gly Gly Phe Cys Gly Lys Cys Ser Pro
2100 2105 2110

Glu Arg Tyr Lys Gly Leu Ile Phe Glu Val Asn Thr Lys Leu Leu Asn
2115 2120 2125

5 His Val Lys Asn Gly Gly His Ile Asp Asp Glu Leu Asp Asp Gly
2130 2135 2140

Phe Ser Gly Asp Met Asp
145 2150